

# PATENT SPECIFICATION

286,831

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## PROVISIONAL SPECIFICATION.

### Improvements in or relating to Automatic Valves for the Regulation of Gas Supply.

We, HARRY JAMES YATES, of Radiation House, 15, Grosvenor Place, London, S.W. 1, a subject of the King of Great Britain, M. HOWLETT & COMPANY LIMITED, of 140, Hockley Hill, Birmingham, in the County of Warwick, a company organised under the laws of Great Britain, and JAMES DOLPHIN, of The Ness, Old Station Road, Hampton-in-Arden, in the County of Warwick, a subject of the King of Great Britain, do hereby declare the nature of this invention to be as follows:—

This invention relates to automatic valves for the regulation of gas supply and although applicable generally to gas valves which are automatically operated, is primarily intended for application to gas regulating valves which are operated by means of thermostats.

As at present constructed such valves are usually of the mushroom or direct lift type and it has been found that such valves do not always operate satisfactorily owing to the fact that grit or other foreign matter lodges on the valve seat while the force tending to close the valve is comparatively slight.

The object of the present invention is to overcome this defect and in accordance with the present invention we provide a grid or strainer which is interposed between the inlet passage for the gas and the valve seat.

In applying our invention to the kind

of valve at present commonly in use wherein a spring pressed mushroom valve is mounted in a casing having an annular valve seat, we may employ a grid or strainer in the form of a thin metal cone arranged with its larger diameter at the top and engaging the inner wall of the valve seat, while its smaller diameter which is below engages the outer wall of the valve guide.

The grid or strainer is provided with a large number of narrow slits which may be arranged axially or in any other fashion.

The gas inlet to such valves is formed usually tangentially by a passage leading through the wall of the casing and through an annular portion thereof, the upper end of which forms the valve seating, and this passage may be controlled by means of an adjustable notched screw arranged in the wall of the casing in the well known manner.

The grid or strainer for the gas may be a relatively tight fit on the valve guide and in the valve seating so that it will retain its position without any additional locking means.

Dated the 29th day of December, 1926.  
FORRESTER, KETLEY & Co.,  
Chartered Patent Agents,  
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Jessel Chambers, 88/90, Chancery Lane,  
London, W.C. 2.

## COMPLETE SPECIFICATION.

### Improvements in or relating to Automatic Valves for the Regulation of Gas Supply.

We, HARRY JAMES YATES, of Radiation House, 15, Grosvenor Place, London, S.W. 1, a subject of the King of Great Britain, M. HOWLETT & COMPANY LIMITED, of 140, Hockley Hill, Birmingham, in the County of Warwick, a company organised under the laws of Great Britain, and JAMES DOLPHIN, of The Ness, Old Station Road, Hampton-in-Arden, in the County of Warwick, a subject of the King of Great Britain, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to automatic valves for the regulation of gas supply and

although applicable generally to gas valves which are automatically operated, is primarily intended for application to gas regulating valves which are operated  
5 by means of thermostats.

It has been found in practice that such valves do not always operate satisfactorily owing to the fact that grit or other foreign matter lodges on the valve seat and to  
10 overcome this difficulty it has been proposed to provide a strainer disposed between the inlet passage for the gas and the valve seating. In one construction hitherto proposed the strainer was of substantially inverted frustro-conical form,  
15 the outer periphery of the large end of the strainer engaging the inner wall of the valve casing whilst the small end of the strainer engaged an upwardly projecting boss formed upon the bottom of the casing.  
20

The object of the present invention is to provide an automatic valve for the regulation of gas supply incorporating an improved construction and arrangement of  
25 strainer which will be more effective in use.

In accordance with the present invention we provide an automatic valve for the regulation of gas comprising a casing  
30 having upwardly projecting walls and having an inner annular wall spaced therefrom forming an inner chamber, an inlet passage for the gas communicating with said inner chamber, an outlet passage for the gas communicating with the space  
35 around said annular wall, said annular wall forming a seating for a valve of mushroom formation adapted to be controlled by suitable means and a substantially  
40 part conical grid or strainer mounted within the inner chamber with its larger diameter uppermost, the periphery of the strainer at its upper end engaging with the inner surface of the  
45 annular wall, the lower end of the strainer being closed by the base of the chamber or a part associated therewith whereby the gas entering through the inlet passage will be caused to pass through the openings in  
50 the grid or strainer before escaping past the mushroom valve and through the outlet passage.

In order that our invention may be clearly understood and more readily  
55 carried into practice we have appended hereunto one sheet of drawings illustrating the same wherein:—

Figure 1 is a side elevation of an automatic gas valve having our invention  
60 applied thereto.

Figure 2 is a vertical section of same.

Figure 3 is a horizontal section on the line 3—3 in Figure 1.

Figure 4 is a perspective view of the  
65 strainer removed,

In the construction illustrated by Figures 1 to 4 of the accompanying drawings our invention is shown applied to an automatic valve for the regulation of gas supply comprising a casing 1 having upwardly projecting walls and having an inner chamber 2 formed by an upwardly projecting inner annular wall spaced  
70 away from the inner surface of the wall of the casing, the upper surface 3 of the inner annular wall forming a seating for a valve 4 of mushroom formation.

The valve 4 is normally retained upon its seating by means of a coiled spring 5 and is provided with a downwardly projecting hollow shank portion 6 which is  
80 slidably mounted within an opening formed in the lower portion of the casing.

Mounted within the hollow shank 6 is a spindle 7 which is screw threaded near its upper end and is in screw threaded engagement with the inner surface of the shank.  
85

The upper end of the spindle 7 is provided with a flat portion 8 which engages with a suitable slot 9 formed in a spindle  
90 10 secured to a rotating dial 11 which may be provided with suitable characters or other indicating means.

The spindle 10 extends downwardly  
95 through a suitable gland nut 18 and thence through a cover 12 which is in screw threaded engagement with the upper end of the casing.

An inlet passage 13 is provided for the entry of the gas, the inlet passage being arranged tangentially to the casing and extending through the inner annular wall into communication with the inner chamber.  
100

Mounted within the inner chamber is a grid or strainer 14 of substantially conical form having its larger diameter uppermost, the upper end of the grid or strainer being preferably forced into position in contact with the inner surface of the inner chamber wall, the lower end of the grid or strainer being closed by an upwardly projecting boss 15 disposed at the lower end of the chamber.  
105

The grid or strainer is preferably formed from thin sheet metal and in the construction illustrated is provided with a plurality of narrow slits 14a arranged substantially axially.  
110

If desired, however, the strainer may be constructed of other suitable perforated material such as wire gauze or the like.  
115

The gas after entering the inlet passage 13 passes into the inner chamber 2 and thence past the mushroom valve 4 by way of the grid or strainer into the space surrounding the inner annular wall the gas then passing through the outlet passage 16.  
120  
125  
130

The lower end of the casing is provided with a downwardly projecting portion 17 for the attachment of a thermostat, the thermostat being adapted to engage with the end of the spindle 7 and thereby actuate the valve.

The mushroom valve can further be adjusted manually by means of the adjusting nut 11 disposed at the upper end of the casing rotation of the adjusting nut causing the spindle 7 to be turned and thereby cause the mushroom valve which is in screw threaded engagement therewith and is prevented from rotation in respect to the casing to rise or fall.

The inlet passage 13 for the gas may be further provided with an adjustable notched screw for further controlling the entry of gas to the casing.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. An automatic valve for the regulation of gas comprising a casing having upwardly projecting walls and having an inner annular wall spaced therefrom forming an inner chamber, an inlet passage for the gas communicating with said inner chamber, an outlet passage for the gas communicating with the space around said annular wall, said annular wall forming

a seating for a valve of mushroom formation adapted to be controlled by suitable means and a substantially part conical grid or strainer mounted within the inner chamber with its larger diameter uppermost, the periphery of the strainer at its upper end engaging with the inner surface of the annular wall, the lower end of the strainer being closed by the base of the chamber or a part associated therewith whereby the gas entering through the inlet passage will be caused to pass through the openings in the grid or strainer before escaping past the mushroom valve and through the outlet passage.

2. An automatic valve according to Claim 1, including a grid or strainer of substantially part conical form having a plurality of axially arranged slits for the passage of gas, the strainer being formed from thin sheet metal.

3. An automatic valve for the regulation of gas supply substantially as described with reference to the accompanying drawings.

Dated the 25th day of August, 1927.  
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London, W.C. 2.

286,831 COMPLETE SPECIFICATION

1 SHEET

*[This Drawing is a reproduction of the Original on a reduced scale.]*

FIG. 1.

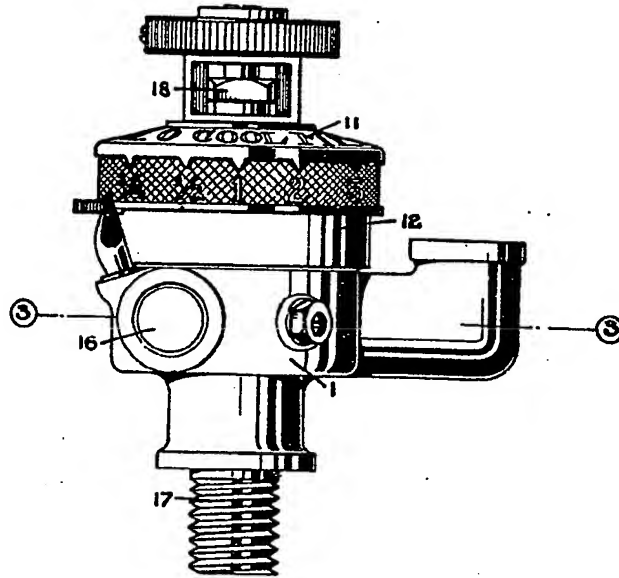


FIG. 2.

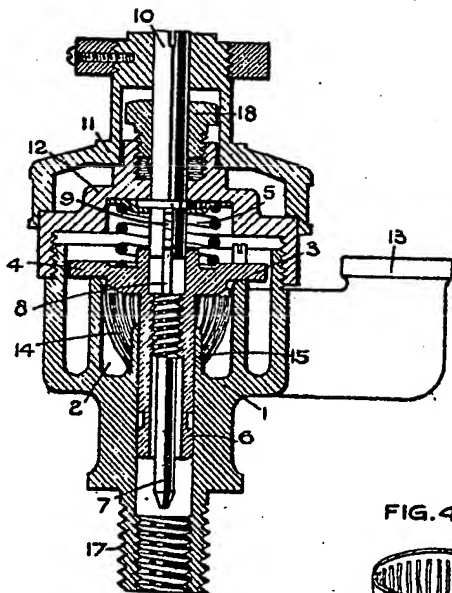


FIG. 3.

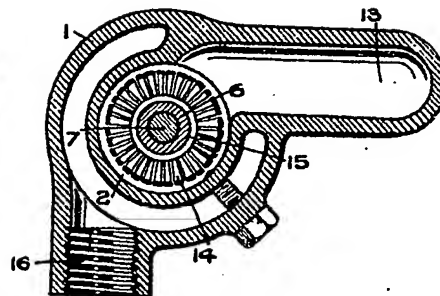


FIG. 4.

